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ABSTRACT

About 80% of the 282 employees at a university-based educational research and development center completed questionnaires based on J.E. Grunig's theory of communication behavior in a study to define communication types, discover communication patterns, and make recommendations for improving the center's communication program. Grunig's theory describes how actively a person communicates about a given situation in terms of four variables: problem recognition, constraint recognition, referent criterion, and level of involvement. In analyzing the survey data, three employee communication types emerged: "information seekers" are the most likely to communicate actively; "selective information processors" are apt to passively accept only certain kinds of information; and "nonselective information processors" are the least likely even to accept information passively, although they will process relevant information when it is easily available to them. (Author/RL)

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EMPLOYEE COMMUNICATION AT A UNIVERSITY-BASED R & D CENTER

An Analysis Using Grunig's Theory of Communication Behavior

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PURPOSE OF THE STUDY

The elusive goal of predicting who is likely to communicate with whom and about what has plagued public relations practitioners for years. In fact, the targeting of messages to a receptive relevant audience has permeated the literature of sociology, psychology, economics, journalism, and advertising as well.

Out of the need to solve this ever-present problem, then, James E. Grunig has developed a decision-situation theory to predict communication behavior.[1]

Grunig's theory describes the four variables that determine how actively a person will communicate about a given situation. These four variables can be grouped into different ways of looking at any situation. Grunig's research has indicated that the probability of one's actively seeking or passively accepting information varies with each combination. A public relations professional, in turn, can use these probabilities to explain why some of his ongoing efforts are effective while others are not and, in some cases, suggest new solutions to his communication problems and needs.

The theory, ultimately, has implications for designing an entire employee communication program.

And Grunig's applied research in various corporations, as well as a large governmental research organization, indicates that the theory and method should be applicable in any organization.

This study departed from the spheres of the private company and

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[1] James E. Grunig, "Evaluating Employee Communication in a Research Operation," Public Relations Review 3 (Winter 1977).

government bureau to apply the decision-situation theory of isolating employee publics and their information needs to a university-based research and development center in education.[2]

The Center, a $5 million-a-year research and development operation, faces communication difficulties peculiar to an organization whose employees' loyalties and commitment are in many cases divided between the Center and its host university. For example, professional staff members are full-time employees of the Center but have faculty-equivalent status in the university. Graduate students are enrolled on the large midwestern campus but often have come to this Big-Ten school specifically to gain experience at the Center. Its director reports to the university provost and also serves as associate dean of the colleges of education, agriculture, and home economics.

Leadership at the Center is aware of resources wasted and gaps remaining in its internal communication efforts. Based on this organization, then, the study tested several specific predictions based on Grunig's theoretical system.

THE GRUNIG THEORY

Identifying publics based on similar communication behaviors, even in a setting of such divergent behaviors as the R & D center described in this study, is possible using Grunig's theory. His applied research has already targeted communication needs of various employee groups as the National Bureau of Standards, the Chesapeake

[2]This paper is adapted from a master's thesis advised by James E. Grunig. The author thanks him for his invaluable help and interest.

and Potomac Telephone Company, the Potomac Electric Power Company, and a large suburban hospital.

Grunig also has arrived at descriptions of employee publics that seem consistent with most organizations. For instance, he characterizes many young workers as ". . . overly constrained and uninvolved in the company and thus unhappy in their jobs."[3] He also has found some consistent gaps in understanding between management and employees.[4] However, by analyzing and applying his theory, any manager can properly define his own personnel audiences and thus see to it that the right information goes to employees who would use it.[5]

For example, Grunig's findings for the large governmental research organization he studied undoubtedly also would apply to the Center. Both institutions conduct basic research, receive most of their funding from the federal government, and are staffed primarily with professional employees. Most professionals are research scientists while most support-staff members are civil servants. (One basic difference between the Center and the Bureau, of course, is the former's university affiliation.)

Grunig's preliminary work indicated that he could expect three distinct communication behaviors at NBS. Pro-

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[3] James E. Grunig, "Some Consistent Types of Employee Publics," Public Relations Review 1 (Winter 1975): 35.

[4] Ibid.

[5] James E. Grunig and James A. Disbrow, "Developing a Probabilistic Model for Communications Decision Making," Communication Research 4 (April 1977): 147.

fessional staff members were liable to communicate horizontally, with their peers, about research-related information rather than administrative problems of the organization. Administrative employees were likely to seek organizational information. And non-professional employees, responding mostly to downward communication from superiors, would seek primarily non-functional material like employee features, sports news, and work rules. The low involvement of most employees, in fact, would result in their passively processing--rather than actively seeking--information.[6] Findings of the NBS study supported these assumptions.

Pelham, looking at a comparable governmental research operation, found strikingly similar employee groups. Her study of internal communication at the Naval Surface Weapons Center yielded three types based on communication behavior similar to that of the groups at NBS: professional/technical, administrative, and employee.[7]

The theory--which assumes that communication is a situational behavior and not the result of cross-situational attitudes, for example--has identified four situational variables: problem recognition, constraint recognition, referent criterion, and level of involvement. As Glanzer and Glaser point out, the central finding of their 25 experiments was that no one communication strategy works best in

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[6] Grunig, "Employee Communication," pp. 64-66.

[7] Karen L. Pelham, "Internal Communications at the Naval Surface Weapons Center: An Analysis using Grunig's Multi-Systems Theory," M.A. thesis, University of Maryland, 1977.

all situations. Instead, efficiency often rests on the nature of the task.[8]

With these considerations in mind, then, the practitioner can predict which publics will seek information about a given situation and, depending on that situation, what kind of information they will need.[9]

Problem recognition, based largely on Carter's concept of "stopping" to think when one's situation becomes indeterminate, refers to a person's recogniton that something is missing in a particular situation.[10]

Constraint recognition is the person's understanding that he is limited in freedom to construct his own behavior. According to Grunig, ". . . people will communicate about situations in which they perceive something to be missing and in which they do not perceive constraints which limit their ability to personally affect the situation."[11] Of course, constraints only limit communication when the individual fully acknowledges their existence.[12] And even then, he still may communicate when recognizing a problem and feeling constrained by communicating about ways to

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[8] M. Glanzer and R. Glaser, "Techniques for the Study of Group Structure and Behavior," Psychology Bulletin 58 (1961): 6, cited by Harold Guetzkow in "Communication in Organizations," in Handbook of Organizations, ed. James G. March (Chicago: Rand McNally, 1965), pp. 558-59.

[9] Grunig, "Employee Communication," p. 62.

[10] Richard F. Carter, "The Alchemy of Communication," address to the Theory and Methodology Division, Association for Education in Journalism (Berkeley, Calif.: 1969).

[11] Grunig, "Employee Communication," pp. 63-64.

[12] James E. Grunig, Communication Behavior: A Multi-Systems Explanation, unpublished manuscript, p. 108.

remove the constraints.[13]

Combined, these two variables of problem recognition and constraints result in four possible behaviors: problem-solving, where problem recognition is coupled with lack of constraints; constrained, a product of high problem recognition with high constraints; fatalistic, resulting from low problem recognition and high constraints; and routine habit, brought about by low problem recognition and low constraints.[14]

PROBLEM RECOGNITION

PERCEIVED CONSTRAINTS	+	-
+	Constrained Behavior	Fatalistic Behavior
-	Problem-Facing Behavior	Routine-Habit Behavior

A referent criterion may or may not be applied in each of these four situations. That "rule of thumb," gleaned from knowledge or experience, tells a person what to do in a given situation and as a result diminishes his need to communicate. As Schramm explains, communication

[13] Ibid., p. 109.

[14] Grunig, "Employee Communication," p. 64. Also, Thayer considers much of a person's behavior as ". . . unthinking behavior--reflexive or habit-directed behavior, if you will. It would seem to be a great mistake to assume that an individual's ordinary behavior is based upon his conscious consideration of its purposes or of its effects." Communication, p. 29. John Dewey also sees habit as "the mainspring of human action." The Public and Its Problems (Chicago: Sage Books, the Swallow Press, 1927), p. 159.

itself can be considered a referent criterion. It is ". . . engaged in because it has met needs in the past, or . . . it is being tried because it is expected to meet present needs."[15]

The last variable, level of involvement, is especially important since it dictates whether one will seek or will process information. (Whereas the first three variables described deal primarily with information seeking, this variable helps explain nonpurposive information acquisition.) A person perceiving himself as actively involved in a situation will, in turn, actively seek information relevant to that situation. On the other hand, when the person does not see himself as involved, he is not motivated to seek information. He may, though, process information if he can do so with little effort or when he has time available.[16] Thus he obtains information he is not looking for. In fact, this information processing can lead to problem recognition which in turn can result in information seeking.[17]

But as Brennan explains:

> Whatever the reasons, it seems clear that when we, as receivers, lack a sense of participation in the process, when we feel constrained to the role of receptor, we perceive no risk or loss should we not

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[15] Wilbur Schramm, Jack Lyle, and Edwin B. Parker, Television in the Lives of Our Children (Stanford, Calif.: Stanford University Press, 1961), p. 75.

[16] Grunig, "Employee Communication," p. 64.

[17] Grunig, Communication Behavior, p. 115.

> get the message, should we not react to it, should we reject its content.[18]

Adding level of involvement to the four types of behavior already described results in a three-way matrix. And, problem-facing behavior--where the chances for communication are greatest--changes with the addition of a referent criterion and so each cell may be divided into two cells and thus 16 different ways of looking at each situation.

Difficult as it is to measure information seeking and information processing, research has indicated that the probability of one's seeking or processing information varies across these combinations.[19]

HYPOTHESES

Grunig's theory, his NBS study, Pelham's results, and other relevant literature suggest the following sets of hypotheses:

1. Professional employees in the university-based research and development center will recognize organization-wide problems but will seek information primarily about their own research. Social news of the center will be of least interest to them. They will rely less on the formal organizational media and more on interpersonal contacts with colleagues.

2. Administrative employees, or the organization type, will seek information about organization-wide problems or administrative situations via established employee media. They will only process information related to research and

[18] John F. Brennan, Jr., The Conscious Communicator: Making Communication Work in the Work Place (Reading, Mass.: Addison-Wesley, 1974), p. 60.

[19] Grunig, "Employee Communication," p. 65. Table 1 represents the most accurate probabilities to date.

will not go out of their way to read strictly human-interest stories.

3. Nonprofessional employees, those with high constraints and low involvement, will neither seek nor process most organizational information unless it makes their constrained situation more tolerable or provides a psychological escape from it. As a result, they will process primarily employee feature-type information when made easily available to them. The exception to this hypothesis involves young employees, who may still stop to think about organizational problems and thus process information.

METHODOLOGY

These three hypotheses were tested at a nationally oriented educational R & D center. The Center, sandwiched between a rusting railroad spur and a long-abandoned poultry-breeding building, sits on the edge of a large midwestern campus. In winter, surrounded by snow drifts, it seems introverted and isolated.

The Center's research and development efforts aimed at solving problems of career preparation have far-reaching effects, however. Students throughout the country use Center programs like Occupational Exploration, Officer Friendly, and the Model Secondary School for the Deaf at Gallaudet University in Washington, D.C.

America's teachers, too, benefit from projects like Performance-Based Professional Education Curricula and the Task Inventory Exchange.

And just as clients come from all 50 states, the Center attracts a variety of personnel. Its 282 full-time employees include 134 professional staff members. In addition to the regular research staff, last year 46 individuals from 15 states and 3 foreign countries worked at the Center as graduate research associates while completing advanced degrees in 17 departments within the university. The remaining 100 employees are support personnel from civil-service and student ranks.

The composition of the Center's multidisciplinary staff reflects the diversity of its R & D program. Of the professionals, 30 percent have their advanced degrees in vocational education; 35 percent in other education disciplines; and 35 percent in non-educational fields like psychology, economics, and sociology.

The Center uses participative management to take advantage of these diverse disciplines in helping design long-range plans. The various fields also ensure the flexibility. necessary for solving client needs and problems.

Training and experience are just as diverse. Center personnel hold doctoral, educational specialist, master's, and bachelor's degrees. They have been recruited from state departments of education, universities, local schools, and government and private research organizations across the country.

Even about 30 percent of the clerical employees hold advanced degrees. They and part-time support personnel work

in the five divisions or service areas of the operation and are recruited from the university or local employment agencies.

To operationalize Grunig's situational theory with this differentiated staff, 11 different situations which might affect the total range of Center staff members were chosen. These situations represent most content dealt with in their employee publications. The situations include employee benefits; public understanding of the Center research; relationship between the Center and the research community; appointment of new personnel; congressional legislation social activities; and decisions made by the Office of Education, National Institute of Education, and the university.

Two of the Center's publications should be explained briefly at this point. The monthly employee newsletter, Centergram, boasts a circulation of 9,600--and that was recently curtailed from over 14,000. It describes new contracts, publications, and project outcomes. It includes a Center brief, or main theme detailing such Center thrusts as curriculum development, installing educational programs, and evaluation.

The weekly calendar, EVOCED, also mentions employee birthdays, anniversaries, and a pat "Thought of the Week."

Using these and other (more self-explanatory) media, then, a self-administered questionnaire measured each of the four theory variables in relation to the given situations.

Questions ask respondents to gauge on a four-point scale:

> Is this situation something you stop to think about? (problem recognition); To what extent do you see a connection between yourself and each of the situations? (level of involvement); How much experience or knowledge do you have that could help you make judgements about each of the situations? (referent criterion); and How much could you do, personally, that might improve the handling of each of the situations? (constraint recognition).[20]

The questionnaire also determined readership of the existing media, content preferences for various types of possible articles, and the extent to which employees had heard several items of information about the Center. These knowledge questions helped determine if individuals who the theory predicts would seek or process certain information actually have. They also pointed to particular media useful in obtaining that information. Most important, however, was their function in relating the four Grunig variables to Center communication behavior.

Survey data were analyzed to develop employee types and to determine which types would use the different organizational media, would prefer different content, and would possess different amounts of knowledge about current organizational concerns. Statistical procedures included frequency counts, factor analyses, canonical correlation, and cross-tabulations.

Seven preliminary factor analyses grouped the variables into categories and thus reduced the many dependent and independent variables to a more manageable number. Resulting factor scores were the input into the canonical corre-

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[20] Grunig, "Employee Communication," p. 67.

lation, along with an additional "time spent per week with employee media" variable.

Canonical correlation, the prime technique, treats the situational variables as independent variables; media, content, knowledge, and time are the dependent variables. Statistical results are canonical variates much like the factors merging from factor analysis.

These sets of scores are maximally correlated with each other--one set for the dependent variables and the second for the independent ones. The latter, or situational variables, were used to determine employee behavior and in turn to place employees into types. Each employee was placed in only one type, although of course any person might exhibit more than one behavior.[21] Type was determined by highest canonical-variate score. The types are expected to parallel those set forth in the hypotheses and, in turn, make confirmation or disconfirmation of the hypotheses possible.

Employee publics, based on the canonical correlation then, were crosstabulated with demographic and remaining media data to develop comprehensive employee-type profiles.

To provide the sheer numbers necessary for statistical significance, the entire Center staff was included in this study. Each employee received the eight-page questionnaire, along with accompanying cover letter and a stamped envelope addressed to this author.

Initial distribution of the procoded questionnaire by

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[21] Ibid., p. 69.

a Center staff person resulted in the return of 186 responses, or 66 percent. A follow-up letter and second, identical, questionnaire was distributed three weeks later. This appeal prompted an additional 36 replies, or 13 percent. Total usable questionnaires received was 222, or 79 percent of the possible 282 employees.

FINDINGS

Frequencies in themselves are interesting but among the other statistical procedures undertaken here, they yield the least insight into types of employee publics at the Center. As such, they will not be addressed in detail.

The seven preliminary factor analyses grouped the following variables into categories for the ensuing canonical correlation: use of formal internal media, categories of information that might appear in Center media, knowledge of information that had appeared in selected articles, and the four situational variables of Grunig's theory.

Resulting factor scores served as the input for the canonical correlation that followed. Initially only one statistically significant canonical variate emerged from the correlation. This single variate explains about 70 percent of the variance.

Although the first correlation was highly significant, a second computer run forced three canonical variates to see if they would be meaningful. Eigenvalues of these variates are, respectively, .69; .24; and .22. Although the last two are not statistically significant, they do help account for more of the variance and seem to be meaningful.

Because of the limited sample size[22] and because the first variate describes most of the people at the Center, not enough variance remains to allow for highly significant results in the last two variates. Only special cases were left after the first canonical variate. But, since the sample was approaching the population, traditional tests of significance are not so important as the researcher's judgment in adding explanatory power by taking a look at these special cases in two distinct variates.

Based on communication behaviors rather than any demographics, the three canonical variates are termed "Information Seekers," "Selective Information Processors," and "Nonselective Information Processors" (see Table 1). Encouragingly, all types of employees at the Center can be expected at least to passively accept some information via their formal media.

The first, or "Information Seekers," variate accounts for most of the Center's employees. The two composite variables within this variate (business and employee) indicate distinct patterns of behavior. The "Business" situations factor, for example, is characterized by problem-facing behavior without a referent criterion. Level of involvement is neutral. The "Employee" situations factor, on the other hand, is high on level of involvement. It too describes problem-facing behavior. Referent-criterion score here is nearly neutral.

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[22] Although 222 employees (nearly 80 percent of the Center's staff) responded to the questionnaire, only about 125 responses were input for these analyses. Missing data account for the limited sample size here. If a person failed to answer even one item on the questionnaire, then his response was deleted from the ensuing analyses. The cumulative effect of this list-wise deletion accounts for loss of almost half the sample by the final analyses.

TABLE 1

Canonical Correlation of Grunig Situational Variables with Communication Variables

	Canonical Coefficients		
	Information Seekers	Selective Information Processors	Nonselective Information Processors
Situational Variables			
Business Situations:			
Problem Recognition	.60	.83	.53
Level of Involvement	.00	-.10	-.36
Constraints	.14	-.35	.37
Referent Criterion	-.04	-.45	-.41
Employee Situations:			
Problem Recognition	.03	.49	-.70
Level of Involvement	.25	-.68	-.56
Constraints	.28	.38	.34
Referent Criterion	-.01	-.20	.37
Communication Variables			
Media Factors:			
Principal	.01	.44	.67
Secondary	.01	.08	.35
Oral	.19	-.11	-.10
Content Factors:			
Research	.42	-.27	-.0?
Administration	.52	.17	-.23
Features	.15	-.19	-.54
Visits/Speeches	.23	-.22	.13
Money/Positions	-.17	.40	-.65
Time Spent on Media:	.09	.18	-.24
Knowledge Factors:			
Features	.23	.48	-.08
Administration	-.14	.19	.22
Research	-.00	-.57	-.45
Canonical Correlation	.83	.49	.47
Chi Square	185.12 96df Significant at .000 level	84.14 77df Significant at .273 level	60.38 60df Significant at .462 level

Center employees fitting this pattern of behavior are the most likely among the entire staff to seek information.

Low involvement characterizes both factors comprising the second, or "Selective Information Processors," variate. The "Business" situations factor, however, shows constrained behavior without a referent criterion. Center employees with this behavior pattern are the least likely to seek information. The "Employee" situations factor (with an even lower level of involvement) does include a referent criterion and, with the absence of perceived high constraints, can be considered problem-facing.

The final canonical variate, "Nonselective Information Processors," also is marked by low levels of involvement. Variables correlating with the "Business" situations factor indicate problem-facing behavior lacking a referent criterion for research- and administrative-related issues. The "Employee" situations factor, with the lowest level of involvement, shows routine-habit behavior with a referent criterion. Staff members fitting this behavior pattern are the least likely even to process information.

Probabilities for seeking and processing information within each of the three canonical variates discussed so far are shown in Table 2. These percentages are based on Grunig's conditional probabilities.[23]

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[23]Grunig, "Employee Communication," p. 65, Table 1.

TABLE 2

Conditional Probabilities of Information Processing and Seeking for Six Center Employee Types

	Business Situations		Employee Situations	
	Information Seeking	Information Processing	Information Seeking	Information Processing
Information Seekers	55-49%*	77-78%*	51-55%*	70-77%*
Selective Information Processors	30%	62%	51%	70%
Nonselective Information Processors	49%	78%	41%	44%

* These ranges reflect the neutrality of the referent-criterion loading for "Employee" situations factor members in the Information Seekers variate and of the level-of-involvement loading for "Business" situations factor members in the Information Seekers variate. See Grunig, "Employee Communication," p. 65, Table 1.

Analysis of the set of dependent variables shown in Table 2 gives a clear picture of what media prevail among the three canonical variates, the kinds of content preferred, the types of articles actually read, and the amount of time spent attending to internal communication efforts. Although these scores fail to explain "why" in themselves, they do offer valuable insight. (Further analysis of the independent variables will provide the necessary explanation.)

The information-seeking variate describes a public that relies more on the oral media than on primary or secondary written materials. These people want to see more news of both research and administrative interest. They spend little time with existing publications but had read the feature articles mentioned in the questionnaire. This seeming paradox is undoubtedly explained more by the content of existing media than by any desire on their part to read feature news, as evidenced by its low loading (.15) on this variate.

The Selective Information Processors variate indicates slightly more time spent with Center publications and heavier reliance on the organization's principal media like the weekly calendar and monthly newsletter. The negative loading on the "oral media" factor indicates that employees fitting this behavior pattern tend not to use verbal media like staff meetings and lecture series for their information. The information they most want to receive concerns money and positions, with administrative news a close second. This variate also describes the behavior of employees who reject news of research, features, and visits and speeches.

The third, or Nonselective Information Processors,

variate shows attendance to some extent to most Center written media--both principal and secondary publications like bulletin boards, posters, and program brochures. Upcoming visits and speeches are the preferred content (probably because scheduling and facilitating these programs is part of the job of employees who fit this pattern).

Explanations for more of the above findings lie in the preceding analysis--that of the canonical variates emerging from the set of independent variables. These scores help the communications manager understand why certain employees want to read more research articles while others prefer administrative news. . .why some staff members spend little time with established media and yet communicate actively with other colleagues. . .and why certain stories already found in the organization's publications are read only by certain employees. They also help explain why some employees, claiming little involvement in Center-wide problems, actually have read more than their involvement level might indicate.

Employees characterized by the first canonical variate, for example, spend little time with the formal Center written media. They do communicate orally, however, and had heard at least the feature items included on the questionnaire. Based on Grunig's earlier work, and that of Smith at the R & D center in Oregon, members described by this Information Seekers variate probably are researchers. They seek more research- and administration-related news, but since the existing employee publications carry little that is actually

"news" to them they rely more on colleagues within the Center. They are slightly interested in feature content and news of visits and speeches but cannot be expected to read articles regarding money or positions.

The Selective Information Processors variate, on the other hand, undoubtedly draws more from administrative ranks than from the scientific. Employees described here are concerned with organization-wide problems and so choose administrative and money/positions content over research news or features. As they feel less involved personally in the workings of the Center than do their counterparts described by the Information Seekers variate, however, they can be expected merely to process the information of interest to them. They duly read the principal Center publications as they find time.

Members whose behavior can be described by the final canonical variate, Nonselective Information Processors, will read almost anything that comes their way in either principal or secondary Center media if it is made easily available to them. They will not go out of their way, though, to communicate orally with other staff members. And the negative coefficient on "time spent on the media" might indicate, in their case, that they read only when they feel they have nothing better to do at work. Indeed, they claim to spend little time on employee publications. They do not seek information on any of the three content factors. And they had actually read only the administrative news among the

sample articles. Staff members described by this last variate probably come from the lowest-level researcher and clerical and technical-support staffs since perceived constraints are high and involvement is extremely low. The represent a type of employee who is largely unconcerned with the Center's formal communication efforts.

Crosstabulating the canonical variates with demographic data results in a comprehensive profile of each of the three employee types. It also helps to confirm further the three hypotheses.

Employees are considered to be in the behavioral pattern described by the one variate where they score highest. Thus the canonical variate scores, or relationships between both independent and dependent variables, help identify the Center's various employee publics. Tables 3-10 show that these three employee groups differ significantly on all demographic measures.[24]

Comparing employee types by age in Table 3 indicates that Information Seekers are significantly older than Center employees falling in either the selective or nonselective information-processing groups. Table 4 shows that the Information Seekers also have been with the Center significantly longer. This undoubtedly helps account for their high involvement scores within the situational set of canonical variates.

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[24] The chi-square test of statistical significance has been conducted for each of the tables appearing in this section. In some cases, as indicated by an asterisk, two or more variables have been grouped together to reduce the small number of responses or even zeros in the matrices. Where this regrouping cannot be done logically, however, the zeros remain. Chi-square values in these cases may not be significant.

TABLE 3

Comparison of Three Employee Types by Age

	N	Information Seekers		Selective Information Processors		Nonselective Information Processors	
		%	N	%	N	%	N
20-30	46	15.2	7	43.5	20	41.3	19
31-40	50	28.0	14	40.0	20	32.0	16
41-50	25	68.0	17	12.0	3	20.0	5
51-60	7	57.1	4	28.6	2	14.3	1
N	128	32.8	42	35.2	45	32.0	41

Chi square=23.58, 6df, $p < .001$

TABLE 4

Comparison of Three Employee Types by Years with the Center

	N	Information Seekers		Selective Information Processors		Nonselective Information Processors	
		%	N	%	N	%	N
0-2	65	24.6	16	41.5	27	33.8	22
3-6	45	28.9	13	31.1	14	40.0	18
7-14*	19	73.7	14	21.1	4	5.3	1
N	129	33.3	43	34.9	45	31.8	41

Chi square=20.25, 4df, $p < .001$

*Years 7-10 and 11-14 have been regrouped together.

Members of the selective information-processing group are younger than their counterparts in the group of Nonselective Information Processors. This helps explain why they are willing to process certain, selected types of information: the third hypothesis in this study suggests that young employees (even nonprofessional ones with low involvement and high constraints) may still stop to think about organizational problems and thus process information.

Selective Information Processors have the highest percentage of newcomers (0-2 years) to the Center. Most members of the nonselective information-processing group fall in the mid-range of 3-6 years.

Comparing the Center's three employee publics by organizational unit, as shown in Table 5 , yields interesting data. For example, no generalization can apply to the Center's five main divisions: research, special projects, information and field services, evaluation, and personnel development. However, results for the Center's two new efforts--the Advanced Study Center and Center for Policy and Planning--are strikingly similar (40 percent of these staff members are found in both information-seeking and nonselective information-processing groups).

As predicted in the first hypothesis, researchers do seek information (at least related to their own research) and indeed, 40.9 percent of the research division falls in the first, or Information Seekers, group. The remainder of this division are about equally split between the other two canonical variates. More than half of the members of the special

TABLE 5:

Comparison of Three Employee Types by Organizational Unit

	N	Information Seekers		Selective Information Processors		Nonselective Information Processors	
		%	N	%	N	%	N
Research division	22	40.9	9	27.3	6	31.8	7
Special projects division	19	26.3	5	15.8	3	57.9	11
Information and field services division	28	25.0	7	42.9	12	32.1	9
Evaluation division	14	35.7	5	42.9	5	28.6	4
Personnel development division	14	35.7	5	35.7	5	28.6	4
Administration	18	44.4	8	50.0	9	5.6	1
Technical support staff	5	0.0	0	60.0	3	40.0	2
Advanced Study Center and Information for Policy and Planning*	5	40.0	2	20.0	1	40.0	2
N	125	32.8	41	35.2	44	32.0	40

Chi square=17.88, 14df, $p < .30$

*These two organizational units have been regrouped together.

projects division, however, are Nonselective Information Processors. And the single largest percentage of both evaluation and information and field services division falls into the group of Selective Information Processors. Members of the personnel-development division are about evenly divided across the three types of employee publics.

Exactly 50 percent of the administrative ranks are found among the Selective Information Processors. Most of the remaining half are Information Seekers, with only 5.6 percent falling in the nonselective information-processing group. Technical support staff is overwhelmingly of the selective information-processing group. Not one member of this organizational unit is part of the Information Seekers public.

The most highly educated Center employees tend to be Information Seekers, as evidenced by Table 6. More than 65 percent of the Ph.D.-or Ed.D. level staff members are included in this group. Remaining doctorate-degree personnel are found in about equal numbers in the other two employee types.

More than half of the Center employees with the least education (high school or less through some college or technical school) help make up the selective information-processing group. Nearly 40 percent of them are Nonselective Information Processors and only about 10 percent can be called Information Seekers. Few college-graduate level employees are Information Seekers. This pattern changes somewhat at the post-graduate study level, where about one third of all employees make up the ranks of the Selective Information Processors, a little more than 40 percent are Nonselective

TABLE 6

Comparison of Three Employee Types by Level of Education

	N	Information Seekers		Selective Information Processors		Nonselective Information Processors	
		%	N	%	N	%	N
High school or less-some college or technical school*	31	9.7	3	51.6	16	38.7	12
College graduate	16	12.5	3	50.0		37.5	6
Post-graduate study	38	23.7	9	34.2	13	42.1	16
Ph.D. or Ed.D. degree	44	65.9	29	18.2	8	15.9	7
N		33.3	43	34.9	45	31.8	41

Chi square=33.36, 6df, $p < .001$

*These two levels of education have been regrouped together.

TABLE 7

Comparison of Three Employee Types by Academic Discipline

	N	Information Seekers		Selective Information Processors		Nonselective Information Processors	
		%	N	%	N	%	N
Vocational education	28	75.0	21	10.7	3	14.3	4
General education	19	26.3	5	42.1	8	31.6	6
Psychology	12	50.0	6	8.3	1	41.7	5
Other*	40	22.5	9	42.5	17	35.0	14
N	99	41.4	41	29.3	29	29.3	29

Chi square=19.26, 6df, $p < .01$

*Regrouped to include sociology, information sciences, and economics.

Information Processors, and the number of Information Seekers grows to over 20 percent.

Findings in Table 7, a comparison of the three types by academic discipline, are only slightly less significant. Three out of every four employees in vocational education are Information Seekers. Only about one in four with a degree in general education, however, is an information seeker. About 40 percent of these employees in other, related education fields are Selective Information Processors. About half of the Center psychologists are Information Seekers, with a high proportion (41.7 percent) of Nonselective Information Processors as well. The majority of staff members in other academic disciplines like sociology, information sciences, economics, English, and journalism are Selective Information Processors.

Comparisons among the three employee publics by sex and race (Tables 8 and 9) are also significant. Almost half of the men employed at the Center are Information Seekers, with the remaining half divided about equally between the Selective and Nonselective Information Processors. Fewer than a quarter of the women, however, can be termed Information Seekers. They are more likely to be Selective Information Processors (43.1 percent) and Nonselective Information Processors (33.3 percent). Minority members of the staff are overwhelmingly Nonselective Information Processors (66.7 percent) whereas non-minority personnel are about evenly distributed among the three employee types.

Finally, comparing the three employee publics by

TABLE 8

Comparison of Three Employee Types by Sex

	N	Information Seekers		Selective Information Processors		Nonselective Information Processors	
		%	N	%	N	%	N
Male	54	46.3	25	25.9	14	27.8	15
Female	72	23.6	17	43.1	31	33.3	24
N	126	33.3	42	35.7	45	31.0	39

Chi square=7.61, 2df, $p < .03$

TABLE 9

Comparison of Three Employee Types by Race

	N	Information Seekers		Selective Information Processors		Nonselective Information Processors	
		%	N	%	N	%	N
Minority	9	22.2		11.1	1	66.7	6
Non-minority	116	34.5	40	36.2	42	29.3	34
N	125	33.6	42	34.4	43	32.0	40

Chi square=5.54, 2df, $p < .07$

their job description (and, accordingly, salary range) yields highly significant insight. Table 10 shows that top administrators of the Center, for instance, are apt to seek information. Not one of these associate directors or the executive director himself is a nonselective information processor. And about three-fourths of the senior R & D specialists are also Information Seekers (the remaining quarter is split between the selective and nonselective information-processing groups).

The next two research levels, R & D specialist II and I, are only slightly less likely to comprise the information-seeking ranks. A striking contrast comes with the next two levels, however: one half of all program associates and program assistants are Nonselective Information Processors and only about nine percent of them actively seek information. Nearly half of the graduate research associates and assistants are also Nonselective Information Processors, but the other half is divided equally between Information Seekers and Selective Information Processors. Most civil-service employees are Selective Information Processors.

CONCLUSIONS

Analyzing internal communication at this university-based R & D center has resulted in a profile of three distinct employee types. These personnel groups have different communication behavior patterns as well as significant demographic differences. Findings seem to support all three hypotheses. Because the hypotheses generated from reviewing the literature

TABLE 10

Comparison of Three Employee Types by Job

	N	Information Seekers		Selective Information Processors		Nonselective Information Processors	
		%	N	%	N	%	N
Executive director and associate directors*	7	85.7	6	14.3	1	00.0	0
Senior R & D specialist	15	73.3	11	13.3	2	13.3	2
R & D specialist II and I*	21	66.7	14	19.0	4	14.3	3
Program associate and program assistant*	22	9.1	2	40.9	9	50.0	11
Graduate research associate and graduate research assistant*	19	26.3	5	26.3	5	47.4	9
Civil service	36	8.3	3	58.3	21	33.3	12
Other	7	14.3	1	42.9	3	42.9	3
N		33.1	42	35.4	45	31.5	40

Chi square=53.37, 12df, $p < .001$

*These two job descriptions have been regrouped together.

are confirmed, these recommendations should be applicable to other university-based R & D centers.

The first hypothesis of this study predicts that professional employees will actively seek information related to their research and passively process organization-wide or feature information. Colleagues--rather than Center publications--would supply most of their information. As the preceding section of this study points out, the Center's professional employees (as determined by job description and organizational unit) do indeed seek information. The content they most want to read is research- and administration-related. And they seek that information from oral, rather than written, sources.

Demographically, these Information Seekers tend to be the Center's oldest employees and those who have been with the organization the longest. They are the most highly educated and tend to be in the field of vocational education, the Center's prime research thrust. They are overwhelmingly upper-echelon researchers and administrators, with a sprinkling of of graduate research associates and assistants. Most of the Center's Information Seekers are men and are not members of minority groups.

This study's second hypothesis describes an administrative or organization-type employee who relies on the Center's written media to keep him abreast of organization-wide or relevant administrative situations. Most communication behaviors (especially that related to research and human interest) for this category of personnel, however, will be passive.

Findings also show that the second canonical variate does in fact recognize organization-wide problems. Members of this selective information-processing group, however, are less involved personally in the overall workings of the Center and so cannot be expected to seek information to the extent that members of the first canonical variate do. Instead, they merely process information--especially administrative information and news related to money and positions. Their source is predominantly the Center's principal written media.

These employees have been with the organization two years or less in most cases. They are young, white, and women. Half of all Center administrators belong to this group, as do more than half of the technical-support staff members and civil servants. They are not so highly educated as are the Information Seekers. Those engaged in research tend to be in general education, rather than vocational education. Many of them are members of the evaluation and information and field services divisions.

The final hypothesis predicts that the organization's nonprofessional employees are the ones least apt to communicate actively. Any information they might seek would be feature type, rather than either administrative or research oriented. The exception involves young employees who are more likely than older ones to process information.

The third canonical variate, or Nonselective Information Processors, supports this hypothesis. Employees comprising this public are the least likely even to process information. The only way they will accept information in the organization's publications is when it is easily available to

them. In fact, even feature articles that the hypothesis predicts they would be most likely to process hold no special allure for this group.

Nonselective Information Processors have been with the Center on an average of three to six years. They also fall in the mid-range of educational background, age, and salary range (as determined by job description). Several of them are members of the special projects division. Forty percent of the technical-support staff fit this category. About a third of the Center's women are Nonselective Information Processors, a group that is also characterized by its high proportion of minority members. And about half of all graduate students working at the Center are Nonselective Information Processors. Program associates and assistants also make up this least-involved group.

The exception to Hypothesis 3, involving young employees, helps explain why so many low-level Center employees fall in the second, or Selective Information Processors, group. These staff members are the youngest, least-educated, and--supposedly--face the highest constraints. Yet, they recognize organization-wide problems and are more likely than the Nonselective Information Processors at least to accept certain kinds of information.

Results of this study have several implications for communication managers at university-based R & D centers, such as this one, concerned with vocational education. The fact that its employees' loyalties are divided among a number of entities like host university, fellow researchers, outside

clientele, and the organization itself does not preclude the staff's attending to internal publications at least to some degree.

The simple frequencies show that many of the Center's employees would always or nearly always read a wide variety of relevant articles. Information seekers, the bulk of the Center's staff, specifically want more research- and administrative-related content in their internal publications. Given their problem recognition and level of involvement, these employees would seek out more content of all types (except money and positions) if they became aware that the Center's media carried this information. More specifically yet, they can be expected to read articles dealing, for example, with congressional legislation; contracts and grants; messages from the director's office; and news of the host university.

For other, less involved staff members--both Selective and Nonselective Information Processors--this information would have to be made easily available.

Recommendations for the specific Center investigated in this study are suggested as ways of enhancing rather than revamping an already fairly successful internal communication program. Again, results of the questionnaire show that many employees are relying on the formal written media for a variety of reasons and that in many cases they even save those publications for future reference. However, Grunig's theory of communication behavior contends that even those employees least involved in the organization as a whole can be made to recognize problems through the organization's written media. In this way level of involvement rises and

leads to a greater probability of seeking--rather than just processing--information.

The first step, of course, is in delineating the various employee publics (as accomplished in this study). Then, distinct strategies for meeting the needs of each group must be devised. In a relatively small organization like this R & D center, though, separate strategies cannot necessitate separate publications for each group. Instead, information of interest to the most employees within each group should get the biggest "play" in the existing internal publications. This can be accomplished by adopting standard newspaper format: the front page contains the articles relevant to the most readers, with items of less far-reaching appeal on inside and back pages. More specifically, the Center's editor should consult the frequencies resulting from the questionnaire for story ideas.

Of course the ultimate decision for which kinds of articles to run lies with Center management but these administrators must realize that Information Seekers within the organization rely on other employees for news they want but cannot learn from current publications. In other words, just because the employee newsletter may fail to carry budget information does not mean that researchers do not find out figures and timelines from their colleagues. To encourage reliance on formal employee publications and to discourage reliance on the grapevine, then, the Center should consider publishing news stories of interest to its employees that are not now contained in its media. This practice cannot guarantee agreement with Center policies but it will promote understanding

and accuracy.[25]

The Center's greatest potential for change in communication behavior and ultimately in attitude toward the organization lies with the third employee public, the Nonselective Information Processors. These people do not feel involved in the Center right now; but because they are willing to process almost any kind of information when it is easy for them to do so, they have the potential for becoming more a part of the Center. In fact, since they rely on the EVOCED over all other forms of written and oral communication, this weekly calendar is the ideal vehicle for communicating vital information like work instructions, changes in benefits, or new research thrusts that might help them in their jobs.

Both principal and secondary media, such as bulletin boards and posters, can carry the articles and be available to these employees as time permits. Bulletins should be prominent in elevators and near drinking fountains; copies of the newsletter and pertinent brochures should be sprinkled on coffee tables in waiting areas and even on the Center's transportation vehicles.

Filling in the content gaps, then, should be the prime task of the Center's communication manager. These gaps appear primarily in the areas of administration and research. (Feature news, though, could be curtailed since none of the three employee publics indicates significant interest in

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[25] Stephen N. Chaffee, Jack M. McLeod, and Jose L. Guerrero, "Origins and Implications of the Coorientation Approach in Communication Research," paper presented to the Association for Education in Journalism (Berkeley, Calif., 1969).

this area.) If administrative and research articles were provided in newspaper format and in sufficient depth to satisfy even the Information Seekers, then the Center's current publications could enjoy the status of being sought out rather than simply processed. And actual-knowledge scores should become considerably higher than they are now.

Finally, the Center's administration must realize that information its employees seek is largely of a situational nature. What is important this year may not be so next year; once certain questions are answered in the employee media they may not require further examination; and new concerns may arise over time. The situational nature of the Grunig theory dictates that a survey of this kind be undertaken at regular intervals.

Appreciating the varied concerns of employee publics, though, is a major step toward enhancing communication at any R & D center--and one that requires little effort and no cost on the part of the organization's administrators. Then, when specific communication needs arise in the future, management will be able to target its messages to its various audiences.

This study describes three employee types based on their communication behavior rather than simply on demographic characteristics. After all, survey results show that lumping employee populations together by age, job, or organizational unit may present a false picture of their communication needs and inclinations. Instead, communication managers should also consider the staff's problem recognition, level of involve-

ment, perception of constraints, and use of referent criterion. These situational variables, when correlated with significant media variables and crosstabulated with still other media variables and demographic data, provide the most comprehensive profile possible of an organization's employee publics.

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